



UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/315,988 05/21/99 KAWANO

H 29273/502

023838

MM92/0130

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WASHINGTON DC 20005

EXAMINER

FERNANDEZ, K

ART UNIT

PAPER NUMBER

2881

DATE MAILED:

01/30/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/315,988

Applicant(s)

KAWANO ET AL.

Examiner

Kalimah Fernandez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 and 4.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in Application No. 09315988, filed on 5/21/99. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the publication "Fast Proximity effect correction method using a pattern area density map", Fumio Murai et al, J.Vac. Sci. Technol. B 10(6), Nov/Dec 1992. Murai discloses a method to correct proximity effect using a e-beam lithography system (page 3075, col.1, lines 8-10). Murai discloses calculation of an area density from a shot area on page 3073, col. 1, lines 20-24. Murai, further, discloses the use of a mesh to partition a sample, i.e. divide regions of the sample to be analyzed (page 3073, col.2, lines 12-19). Murai recites a method or means to correct the level of exposure for each shot (page 3073, col.2, lines 14-19).
3. Murai does not explicitly recite a judging means for determining if any shots straddles a plurality of meshes, however, Murai does describe this problem on page

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3073, col.2, lines 20-35 and define a means to correct it. Therefore, it is held that Murai's disclosure would suggest the addition of said judging means to one of ordinary skill or alternatively, the teaching of said judging means is inherent in Murai's recitation.

4. As per claims 2 and 6, Murai teaches the consideration of the mesh boundaries as discussed above. Furthermore, Murai's teachings of a pattern map imply the use of positional relations between coordinates. In regards to claim 3, Murai states the defined correction scheme as calculation of the exposure map and smoothing of the map. In the smoothing procedure, Murai takes into account the influence of nearby meshes, therefore adding their effect to the correction procedure.

5. As per claims 5 and 8-9, Murai teaches the storage of the area densities in a map memory (page 3073, col.1, lines 25-26). Murai does not teach the division of the memory as recited. However, said recitation is considered to be an obvious design choice, since applicant does not demonstrate the criticality of this limitation and fails to assert any specific problem to be solved by the recitation. Therefore, it appears that the invention would perform equally well with no the division of memory.

6. As per claims 4,7, and 10, the recitation of $N \times M$ memory to accommodate boundary data is held to be an obvious teaching of Murai, since Murai discloses means to correct such effects and further teaches the storage of the entire map data.

Alternatively, it would have been obvious to one skilled in the art to suggest a means to separately account for overlapping data, since Murai states the problem must be addressed. In regards to the other limitations of claim 10, each recitation was

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handled in the addressing of previous claims, since claim 10 is a combination of previously recited limitations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 703-305-6310. The examiner can normally be reached on 7:00am-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa Arroyo can be reached on 703-308-4782. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and for after Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

kf
January 29, 2001


JACK BERMAN
PRIMARY EXAMINER